



QuickScan® QS2500 Handheld Bar Code Scanner



Product Reference Guide

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Installation

Keyboard Wedge

Complete the following steps:

1. Turn off the terminal or computer.
2. Disconnect the keyboard cable from the back of the terminal or computer.
3. Connect the QS2500 to the terminal or computer using the appropriate interface cable.
4. Turn the terminal or computer back on.

RS-232

Complete the following steps:

1. Turn off the terminal or computer.
2. Connect the appropriate interface cable and, if you are not using a power-off terminal (POT), the external power supply (DC adapter) shipped with your QS2500.
3. Plug the serial connector into the serial port on the back of the computer or terminal. (Tighten the two screws to secure the connector to the port.)
4. Plug the power pack into the power source.
5. Turn the terminal or computer back on.



If the QS2500 does not operate, turn off the terminal or computer immediately and check all connections. If necessary, go through the above steps again.

NOTE

Programming the QS2500

To program the QS2500, you must scan a series of programming bar codes in the correct order. The inside back cover of this manual contains a table of alphanumeric bar codes needed to program the various options.

To program each option:

1. Scan the Start Program bar code above the list of options (see the figure below).
2. Enter the Option mode by scanning the Option bar code.
3. Find the alphanumeric entry for the option setting you want, and scan the alphanumeric characters located on the inside back cover.
4. Scan the Finish bar code on the inside back cover.
5. Scan the Exit bar code below the list of options.

Start Program Bar Code



Start Program§

Option Bar Code



Option Bar Code§	Options	Alphanumeric Entry§
Scanning Mode§	Good-read off§ Momentary§ Alternate§ Timeout off§ Continue§ Test only§	00§ 01§ 02§ 03§ 04§ 05§
Standby Duration§	0-99 (sec.)§	01-99§ 10§
Same Bar Code Delay Time§	0-99 (10 msec.)§	01-99§ 50§
Double Confirm§	0-99 (0 = no double confirm)§	00-09§ 00§
Multifield Scan§	Disable§ Enable§	00§ 01§

Inside Back Cover

	0		A
	1		B
	2		C
	3		D
	4		E
	5		F
	6		Finish
	7		
	8		
	9		

Exit Bar Code



An asterisk (*) in the table indicates the default setting.

NOTE

Resetting the QS2500

To return all QS2500 option settings to the factory defaults, scan the following three bar codes, in the order shown:

Start Program



Default Value Initialization



Exit



Interface

The QS2500 supports both Keyboard Wedge and RS-232 interfaces. The scanner is shipped with correct cable for your interface.

Keyboard Wedge

As a keyboard interface, the QS2500 supports most popular PCs and IBM terminals. The installation of the wedge is a fairly simple process that doesn't require any changes of software or hardware.

Keyboard Type: Select the keyboard type connector for your host computer.

Keyboard Layout: The Keyboard Layout option supports many languages. For details about keyboard languages, please refer to your DOS or Windows manual.

Keyboard Speed: You can change the output speed of the QS2500 to match that of the host computer. Generally, set **00** or **01** for high speed. If output characters of bar codes get lost, you may need to set a slower speed.



Start Program

Option Bar Code	Option	Alphanumeric Entry
 Keyboard Type	IBM AT, PS/2	00*
	IBM PS/2 25,30	01
	IBM PS/2 25	02
	IBM XT	03
	IBM 5550	04
	Macintosh ADB	05
	NEC 9801	06
 Keyboard Layout	USA	00*
	Belgium	01
	Danish	02
	France	03
	Germany	04
	Italian	05
	Portuguese	06
	Spanish	07
	Swedish	08
	Switzerland	09
	UK	10
	Latin American	11
 Keyboard Speed	0-8 (0 = high clock rate; 8 = low clock rate)	00-08 01*



Exit

Function Key: When this option is enabled, the QS2500 outputs bar code ASCII values from 0116 to 1F16 as function-key presses in your application. See the table of ASCII codes on page 57.

Numeric Key: If your application accepts only keypad numeric code, use setting **01** to make the QS2500 output code as numeric-keypad presses when it reads digits. If you use setting **02**, Caps Lock and output will be independent.

Caps Lock: By selecting Caps Lock or No Caps Lock, the QS2500 can get Caps Lock status.

Power-On Simulation: All PCs check the keyboard status during the power-on selftest. It is recommended that you enable this function if you are working without a keyboard installation. It simulates keyboard timing and passes the keyboard status to the PC during power-on.

Intercharacter Delay: This delay is inserted after each data character transmitted. If the transmission speed is too high, the system may not be able to receive all characters. You may need to adjust the delay to make the system work properly.

Block Transmission Delay: This is a delay timer between bar code data outputs. The feature is used to transfer continually with shorter bar code data or multifield scanning.



Start Program

Option Bar Code	Option	Alphanumeric Entry
	Disable	00*
	Enable	01
	Alphabetic key	00*
	Numeric keypad only	01
	Alt+Keypad	02
	Caps lock	00
	No caps lock	01*

Option Bar Code	Option	Alphanumeric Entry
 Power-On Simulation	Disable	00*
	Enable	01
 Intercharacter Delay	0-99 (msec.)	00-99 02*
 Block Transmission Delay	0-99 (10 msec.)	00-99 10*



Exit

RS-232

CTS = Clear To Send (Hardware Signal)

RTS = Request To Send (Hardware Signal)

Xon = Transmit On (ASCII Code 1116)

Xoff = Transmit Off (ASCII Code 1316)

Flow Control

None: The communication uses only TxD and RxD signals, without regard for any hardware or software handshaking protocol.

RTS/CTS: If the QS2500 wants to send the bar code data to the host computer, it will issue the RTS signal first, wait for the CTS signal from the host computer, and then perform the normal data communication. If there is no replied CTS signal from the host computer after the timeout (response delay) duration, the QS2500 will issue five warning beeps.

Xon/Xoff: When the host computer is unable to accept data, it sends an Xoff code to inform the QS2500 to suspend data transmission and an Xon to continue.

ACK/NAK: When the ACK/NAK protocol is used, the QS2500 waits for an ACK (acknowledge) or NAK (not acknowledge) from the host computer after data transmission. It then resends the data in response to a NAK.

Intercharacter Delay: This is the delay time between outputs of data character. It is the same as the intercharacter delay of the keyboard wedge.

Block Transmission Delay: This is the delay time between outputs of bar code data. It is the same as the block transmission delay of the keyboard wedge.

Response Delay: This delay is used for serial communication. It is the amount of time the QS2500 waits for handshaking acknowledgement from the host computer.



Start Program

Option Bar Code	Option	Alphanumeric Entry
 Flow Control	None	00*
	RTS/CTS	01
	Xon/Xoff	02
	ACK/NAK	03
	PSC Aux. Port ^a	04
 Intercharacter Delay	0–99 (msec.)	00–99 00*
 Block Transmission Delay	0–99 (10 msec.)	00–99 00*
 Response Delay	0–99 (100 msec.)	00–99 20*

Option Bar Code	Option	Alphanumeric Entry
 Baud Rate	300 Baud	00
	600 Baud	01
	1200 Baud	02
	2400 Baud	03
	4800 Baud	04
	9600 Baud	05*
	19200 Baud	06
	38400 Baud	07
 Parity	None	00*
	Odd	01
	Even	02
 Data Bit	8 bits	00*
	7 bits	01
 Stop Bit	1 bit	00*
	2 bits	01



Exit

- a. Reading PDF417 through the Aux. Port is host dependent.

Scan

Scanning Mode

Good-read off: The trigger button must be pressed to activate scanning. The light source of the QS2500 stops scanning when there is a successful read or no code is decoded after the standby duration has elapsed.

Momentary: The trigger button acts as a switch. Pressing the button activates scanning and releasing the button stops scanning.

Alternate: The trigger button acts as a toggle switch. Pressing the button activates or stops scanning.

Timeout off: The trigger button must be pressed to activate scanning, and the QS2500 stops scanning when no code is decoded after the standby duration has elapsed.

Continue: The QS2500 always keeps reading, and it does not matter whether the trigger button is pressed or the standby duration has elapsed.

Test only: The QS2500 always keeps a constant reading, and same-label reading is allowed without double confirmation. The feature can test the performance of the QS2500 for reading speed and sensitivity.

Standby Duration: A timeout duration of 1 to 99 seconds can be set. It is effective only when the CCD scanning mode is operated in timeout-off mode and good-read off mode.

Same Bar Code Delay Time: If the bar code has been scanned twice, then only the first bar code will be accepted.

Double Confirm: If this option is enabled, the QS2500 will require a several successful decodings to confirm the bar code data. Larger settings will make misreadings less likely. If a double confirm is set, the multifield scan function will be disabled.

Multifield Scan: The QS2500 can be read many sets of bar code data on the same scanning line at the same time, even if they are different kinds of bar code symbology.



Start Program

Option Bar Code	Option	Alphanumeric Entry
	Good-read off	00
	Momentary	01*
	Alternate	02
	Timeout off	03
	Continue	04
	Test only	05
	0–99 (sec.)	01–99 10*
	0–99 (10 msec.)	01–99 50*
	0–99 (0 = no double confirm)	00–09 00*
	Disable	00*
	Enable	01



Exit

Global Minimum/Maximum Code Length: Global minimum and maximum length can be set to qualify data entry. The length is defined as the actual bar code data length to be sent. Labels with length exceeding these limits will be rejected. Make sure that the minimum-length setting is no greater than the maximum-length setting; otherwise, the labels of the symbology will not be readable. In particular, you can set the same value for both minimum and maximum lengths to force decoding of only fixed-length bar codes. This setting has no effect on certain symbologies of fixed length.

**NOTE**

Set the minimum/maximum length if you have a special demand for individual bar codes. Include the checksum digits if you want to set global minimum/maximum code length.

Inverted Image Scan: With this option enabled, the QS2500 will scan black/white bar codes with a white/black background.

CTS Trigger: This operation enables an external device to control scanning by applying an external trigger signal to the CTS input. When active, this signal causes scanning to begin as the QS2500's trigger is depressed.

Power-Saving Mode: The QS2500 will operate in power-saving mode if this function is enabled.

Position Indication: This function can indicate the specific location before scanning. You can also set up the time of indication.



Start Program

Option Bar Code	Option	Alphanumeric Entry
	0-63	00-63 04*
	0-63	00-63 63*
	Disable	00*
	Enable	01
	Disable	00*
	Enable	01
	Disable	00*
	Enable	01

Option Bar Code	Option	Alphanumeric Entry
 Position Indication	Disable	00*
	30 second	01
	60 second	02
	90 second	03
	120 second	04
	150 second	05
	180 second	06
	Continue	07



Exit

Beep/Tone/LED Settings

Power-On Alert: After power-on, the QS2500 will generate an alert signal to indicate a successful self-test.

LED Indication: After each successful bar code reading, the LED above the QS2500 will light up.

Buzzer Indication: After each successful bar code reading, the QS2500 will beep.

Beep Loudness/Beep-Tone Frequency/Beep-Tone Duration: You can adjust the loudness, tone, and duration of the good-read beep.



Start Program

Option Bar Code	Option	Alphanumeric Entry
 Power-On Alert	Disable	00
	Enable	01*

Option Bar Code	Option	Alphanumeric Entry
	Disable	00
	Enable	01*
	Disable	00
	Enable	01*
	0-07	00-07 03*
	0-99 (100Hz)	00-99 26*
	0-99 (10 msec.)	00-99 10*



Exit

Label Editing (includes Prefix/Suffix)

Prefix Characters: Up to 22 ASCII characters may be sent before data digits.



Suffix Characters: Up to 22 ASCII characters may be sent after data digits.

Preamble/Postamble Characters: These characters are affixed to the data automatically when each bar code is decoded.

Example: Add a prefix/suffix or preamble/postamble for all symbologies. In this example, you sending a \$ symbol as a prefix for all symbologies by completing the following steps:

1. Scan the Start Program and Prefix Characters Setting bar codes below.
2. Use the ASCII code table (see page 57) to find the ASCII value for \$(24).

3. Scan the bar codes for 2 and 4 on the inside back cover of this manual.
4. Scan the Finish bar code on the inside back cover.
5. Scan the Exit bar code below.

Insert G1/G2/G3/G4 Character Setting: The QS2500 offer four positions and four characters to insert into the symbol data.

Example: Bar code: “1 2 3 4 5 6”.

Output: “1 2 A B 3 4 C D 5 6”.

1. Scan Start Program and Insert G1 Characters Setting bar code below.
2. Use the ASCII code table (see page 57) to find the ASCII value for A (41) and B (42).
3. Scan the bar codes for 4, 1 and 4, 2 on the inside back cover of this manual.
4. Scan the Finish bar code on the inside back cover.
5. Repeat the same procedure for the G2 characters.
6. Scan the Exit bar code below.
7. Insert the data group 1–4 position. See page 16.



Start Program

Option Bar Code	Option	Alphanumeric Entry
	None	00*
	1–22 characters	00–ff _{hex} ASCII code
	None	00
	1–22 characters	00–ff _{hex} ASCII code
		<cr>*
	None	00*
	1–22 characters	00–ff _{hex} ASCII code

Option Bar Code	Option	Alphanumeric Entry
 Postamble	None	00*
	1–22 characters	00–ff _{hex} ASCII code
 Insert G1 Characters Setting	None	00*
	1–22 characters	00–ff _{hex} ASCII code
 Insert G2 Characters Setting	None	00*
	1–22 characters	00–ff _{hex} ASCII code
 Insert G3 Characters Setting	None	00*
	1–22 characters	00–ff _{hex} ASCII code
 Insert G4 Characters Setting	None	00*
	1–22 characters	00–ff _{hex} ASCII code



Exit

Preamble Transmission: The preamble will be appended before the data is transmitted.

Postamble Transmission: The postamble will be appended after the data is transmitted.

Insert Data Group 1–4 Position: The QS2500 offers four positions to insert characters into the bar code data. The position default value of “00” indicate no character insertion.



Make sure insertion positions are not greater than the number of bar code characters; otherwise, the data will not be inserted.

NOTE

Code ID Position: The code ID can be placed before or after the code data when it is transmitted.



Start Program

Option Bar Code	Option	Alphanumeric Entry
Preamble Transmission	Disable	00*
	Enable	01
Postamble Transmission	Disable	00*
	Enable	01
Insert Data Group 1 Position	0–63 (0 = no insertion)	00* 00–63
	1–22 characters	00–ff _{hex} ASCII code
Insert Data Group 2 Position	0–63 (0 = no insertion)	00* 00–63
Insert Data Group 3 Position	0–63 (0 = no insertion)	00* 00–63
Insert Data Group 4 Position	0–63 (0 = no insertion)	00* 00–63

Option Bar Code	Option	Alphanumeric Entry
 Code ID Position	Before code data	00*
	After code data	01



Exit

Code ID Transmission: Enable this option to transmit the code ID. See page 19.

Code Length Transmission: A number of data digits can be transmitted before the code data. The total length of the bar code is the number of characters of bar code data without truncated leading or ending digits.

Code Name Transmission: This function is used to show unknown bar code symbologies that include all readable symbologies of the QS2500. The code name will be transmitted before the bar code data to identify the symbology.

Case Conversion: You can set the human-readable characters to be displayed as either uppercase or lowercase below the bar code.



Start Program

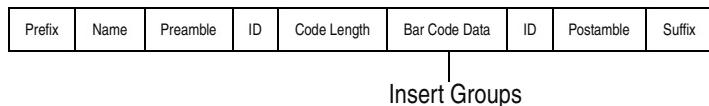
Option Bar Code	Option	Alphanumeric Entry
 Code ID Transmission	Disable	00*
	Enable	01
 Code Length Transmission	Disable	00*
	Enable	01
 Code Name Transmission	Disable	00*
	Enable	01

Option Bar Code	Option	Alphanumeric Entry
 Case Conversion (for bar code data only)	Disable	00*
	Uppercase	01
	Lowercase	02



Exit

Format of bar code data transmission:



Symbology Settings

UPC-A

Read: Format:

Leading Zero	Data Digits (11 Digits)	Check Digit
--------------	-------------------------	-------------

Checksum Transmission: With this option enabled, the QS2500 will transmit the checksum.

Truncate Leading/Ending: The leading or ending digits of bar code data characters can be truncated. The QS2500 will beep instead of reading anything when the truncate value is more than the bar code data digits or the truncate leading value overlaps the truncate ending value.

Code ID Setting: The code ID is a character used to represent the bar code type. The code ID is affixed to the beginning or end of the transmitted data if the feature is selected. If you want your application to transmit the code ID, you must set the code ID transmission option to **01** first. See page 17.

Insertion Group Selection: The QS2500 offers one or two insertion groups for a symbology. Set one or two digits to indicate which insertion group you want to insert. See pages 14–16 for information about insertion groups.

Examples: Group 2 → set 02 or 20

Group 1 and 4 → set 14 or 41



Start Program

Option Bar Code	Option	Alphanumeric Entry
 Read	Disable	00
	Enable	01*
 Checksum Verification	Disable	00
	Enable	01*

Option Bar Code	Option	Alphanumeric Entry
	Disable	00
	Enable	01*
	0–15	00–15 00*
	0–15	00–15 00*
	00–ff _{hex} ASCII code	00–ff _{hex} <A>*
	0–44	00–44 00*



Exit

Supplement Digits: The supplement-digits bar code is the supplemental 2 or 5 characters for WPC code.

Format:

Leading Zero	Data Digits (11 Digits)	Check Digit	Supplemental Digits (2 or 5)
--------------	-------------------------	-------------	---------------------------------

Truncate Leading Zero: The leading zeros in bar code data can be truncated.

Examples: Bar code: “00054321”

Output: “54321”



Start Program

Option Bar Code	Option	Alphanumeric Entry
	None	00*
	2 digits	01
	5 digits	02
	UCC/EAN 128	03
	Auto Detection	04
	Disable	00
	Enable	01*



Exit

UPC-E

Read:

Format:

Leading Zero	Data Digits (6 Digits)	Check Digits
--------------	------------------------	--------------

Checksum Transmission: When this option is enabled, the QS2500 will transmit the checksum.

Truncate Leading/Ending: Same as UPC-A. See page 19.

Code Id Setting: Same as UPC-A. See page 19.

Insertion Group Selection: Same as UPC-A. See page 19.

Supplement Digits: Format:

Leading Zero	Data Digits (6 Digits)	Check Digit	Supplemental Digits (2 or 5)
--------------	------------------------	-------------	---------------------------------

Truncate Leading Zero: Same as UPC-A. See page 20.

Expansion: The expansion function is used only for UPC-E and EAN-8 barcodes. It extends to 13 digits with zeros.

Example: Bar code: “0123654”

Output: “0012360000057”



Start Program

Option Bar Code	Option	Alphanumeric Entry
	Disable	00
	Enable	01*
	Disable	00
	Enable	01*
	Disable	00
	Enable	01*
	0–15	00–15 00*
	0–15	00–15 00*
	00–ffH ASCII code	00–ff _{hex} <E>*
	0–44	00–44 00*

Option Bar Code	Option	Alphanumeric Entry
 Supplement Digits	None	00*
	2 digits	01
	5 digits	02
	UCC/EAN 128	03
	Auto Detection	04
 Truncate Leading Zero	Disable	00
	Enable	01*
 Expansion	Disable	00*
	Enable	01



Exit

EAN-13

Read: Format:

Data Digits (12 Digits)	Check Digits
-------------------------	--------------

Checksum Transmission: When this option is enabled, the QS2500 will transmit the checksum.

Truncate Leading/Ending: Same as UPC-A. See page 19.

Code ID Setting: Same as UPC-A. See page 19.

Insertion Group Selection: Same as UPC-A. See page 19.

Supplement Digits: Format:

Data Digits (6 Digits)	Check Digits	Supplement Digits 2 or 5
---------------------------	-----------------	-----------------------------

Truncate Leading Zero: Same as UPC-A. See page 20.

ISBN/ISSN: The ISBN (International Standard Book Number) and ISSN (International Standard Serial Number) are two kinds of bar code for books and magazines. The ISBN is ten digits, with a leading “978”, and the ISSN is eight digits, with a leading “977”.

Examples: Bar code: “9789572222720”

Output: “9572222724”

Bar code: “9771019248004”

Output: “10192484”



Start Program

Option Bar Code	Option	Alphanumeric Entry
	Disable	00
	Enable	01*
	Disable	00
	Enable	01*
	Disable	00
	Enable	01*
	0–15	00–15 00*
	0–15	00–15 00*
	00–ffH ASCII code	00–ff _{hex} <F>*
	0–44	00–44 00*

Option Bar Code	Option	Alphanumeric Entry
 Supplement Digits	None	00*
	2 digits	01
	5 digits	02
	UCC/EAN 128	03
	Auto Detection	04
 Truncate Leading Zero	Disable	00*
	Enable	01
 ISBN/ISSN Conversion	Disable	00*
	Enable	01



Exit

EAN-8

Read: Format:

Data Digits (7 Digits)	Check Digits
------------------------	--------------

Checksum Transmission: When this option is enabled, the QS2500 will transmit the checksum.

Truncate Leading/Ending: Same as UPC-A. See page 19.

Code ID Setting: Same as UPC-A. See page 19.

Insertion Group Selection: Same as UPC-A. See page 19.

Supplement Digits: Format:

Data Digits (7 Digits)	Check Digits	Supplement Digits (2 or 5)
------------------------	--------------	----------------------------

Truncate Leading Zero: Same as UPC-A. See page 20.

Expansion: Same as UPC-E. See page 22.



Start Program

Option Bar Code	Option	Alphanumeric Entry
	Disable	00
	Enable	01*
	Disable	00
	Enable	01*
	Disable	00
	Enable	01*
	0–15	00–15 00*
	0–15	00–15 00*
	Two characters 00–ff _{hex} ASCII code	00–ff _{hex} <FF>*
	0–44	00–44 00*
	None	00*
	2 digits	01
	5 digits	02
	UCC/EAN 128	03
	Auto Detection	04

Option Bar Code	Option	Alphanumeric Entry
 Truncate Leading Zero	Disable	00*
	Enable	01
 Expansion	Disable	00*
	Enable	01



Exit

Code 39

Read: Format:

Start “*”	Data Digits (Variable)	Checksum (Optional)	End “*”
-----------	------------------------	---------------------	---------

Checksum Verification: The checksum is optional and presented as the sum module 43 of the numerical value of the data digits.

Checksum Transmission: When this option is enabled, the QS2500 will transmit the checksum.

Maximum/Minimum Code Length: Each symbology has own maximum and minimum code length, which can be set to qualify data entry. The length is defined as the actual bar code data length to be sent. Labels with lengths below the minimum or above the maximum will be rejected. If the maximum and minimum code lengths are both set to zero, the global minimum and maximum code length settings are in effect.



NOTE

Make sure that the minimum length setting is not greater than the maximum length setting; otherwise, all the labels of the symbology will be unreadable. You can set the same value for both minimum and maximum length to force decoding of only bar codes of a certain length.

Truncate Leading/Ending: Same as UPC-A. See page 19.



Start Program

Option Bar Code	Option	Alphanumeric Entry
	Disable	00
	Enable	01*
	Disable	00*
	Enable	01
	Disable	00*
	Enable	01
	0–64	00–64 00*
	0–64	00–64 00*
	0–15	00–15 00*
	0–15	00–15 00*



Exit

Code ID Setting: Same as UPC-A. See page 19.

Insertion Group Selection: Same as UPC-A. See page 19.

Format: The Full ASCII Code 39, an enhanced set of Code 39, uses a total of 128 characters to represent Full ASCII code. Each Full ASCII Code 39 character is a combination of one of the characters +, %, \$ and / with an uppercase alphabetical character (A to Z).

Append: This function allows several symbols to be concatenated and be treated as a single entry. The QS2500 will not transmit the embedded appending code (for Code-39, a space). If the append function is enabled and other symbols are read again with the appended code, then the codes are transmitted without the code ID, preamble, or prefix. When a symbol was decoded without the appended code, the data is transmitted without the code ID and prefix, but the postamble suffix codes are appended. This function is used when the first character of Code 39 data is a space.

Start/End Transmission: The start and end characters of Code 39 are asterisks (*). You can transmit all data digits, including the two asterisks.



Start Program

Option Bar Code	Option	Alphanumeric Entry
	00–ff _{hex} ASCII code	00–ff _{hex} <*>
	0–44	00–44 00*
	Standard	00*
	Odd S-code	01
	Disable	00*
	Enable	01
	Disable	00*
	Enable	01



Exit

Interleaved 2 of 5

Read: Format:

Data Digits (Variable)	Checksum (Optional)
------------------------	---------------------

Checksum Verification: The checksum is presented as the sum module 10 of the numerical values of all data digits.

Checksum Transmission: When this option is enabled, the QS2500 will transmit the checksum.

Maximum/Minimum Code Length: Same as Code 39. See page 27.

Truncate Leading/Ending: Same as UPC-A. See page 19.

Code ID Setting: Same as UPC-A. See page 19.

Insertion Group Selection: Same as UPC-A. See page 19.



Start Program

Option Bar Code	Option	Alphanumeric Entry
 Read	Disable	00
	Enable	01*
 Checksum Verification	Disable	00
	Enable	01*
 Checksum Transmission	Disable	00*
	Enable	01
 Maximum Code Length	0-64	00-64 00*
 Minimum Code Length	0-64	00-64 00*

Option Bar Code	Option	Alphanumeric Entry
 Truncate Leading	0–15	00–15 00*
 Truncate Ending	0–15	00–15 00*
 Code ID Setting	00–ff _{hex} ASCII code	00–ff _{hex} <i>*
 Insertion Group Selection	0–44	00–44 00*
 Format	Standard	00*
	Odd S-code	01
 S-Code ID Setting	00–ff _{hex} ASCII code	00–ff _{hex} <i>



Exit

Industrial 2 of 5

Read: Format:

Data Digits (Variable)	Checksum (Optional)
------------------------	---------------------

Maximum/Minimum Code Length: Same as Code 39. See page 27.

Truncate Leading/Ending: Same as UPC-A. See page 19.

Code ID Setting: Same as UPC-A. See page 19.

Insertion Group Selection: Same as UPC-A. See page 19.



Start Program

Option Bar Code	Option	Alphanumeric Entry
Read	Disable	00
	Enable	01*
Maximum Code Length	0–64	00–64 00*
Minimum Code Length	0–64	00–64 00*
Truncate Leading	0–15	00–15 00*
Truncate Ending	0–15	00–15 00*
Code ID Setting	00–ff _{hex} ASCII code	00–ff _{hex} <i>*
Insertion Group Selection	0–44	00–44 00*



Exit

Matrix 2 of 5

Read: Format:

Data Digits (Variable)	Checksum (Optional)
------------------------	---------------------

Checksum Verification: The checksum is presented as the sum module 10 of the numerical values of all data digits.

Checksum Transmission: When this option is enabled, the QS2500 will transmit the checksum.

Maximum/Minimum Code Length: Same as Code 39. See page 27.

Truncate Leading/Ending: Same as UPC-A. See page 19.

Code ID Setting: Same as UPC-A. See page 19.

Insertion Group Selection: Same as UPC-A. See page 19.



Start Program

Option Bar Code	Option	Alphanumeric Entry
Read	Disable	00*
	Enable	01
Checksum Verification	Disable	00*
	Enable	01
Checksum Transmission	Disable	00*
	Enable	01
Maximum Code Length	0–64	00–64 00*
Minimum Code Length	0–64	00–64 00*
Truncate Leading	0–15	00–15 00*
Truncate Ending	0–15	00–15 00*

Option Bar Code	Option	Alphanumeric Entry
 Code ID Setting	00–ff _{hex} ASCII code	00–ff _{hex} *
 Insertion Group Selection	0–44	00–44 00*



Exit

Codabar

Read: Format:

Start	Data Digits (Variable)	Checksum (Optional)	End
-------	------------------------	---------------------	-----

Checksum Verification: The checksum is presented as the sum module 16 (hex) of the numerical values of all data digits.

Checksum Transmission: When this option is enabled, the QS2500 will transmit the checksum.

Maximum/Minimum Code Length: Same as Code 39. See page 27.

Truncate Leading/Ending: Same as UPC-A. See page 19.

Code ID Setting: Same as UPC-A. See page 19.

Insertion Group Selection: Same as UPC-A. See page 19.

Start/End Type: Codabar has four pairs of Start/End patterns. Select one pair to match your application.

Start/End Transmission: Same as Code 39. See page 29.



Start Program

Option Bar Code	Option	Alphanumeric Entry
	Disable	00
	Enable	01*
	Disable	00*
	Enable	01
	Disable	00*
	Enable	01
	64–Minimum	64–00 00*
	0–Maximum	00–64 00*
	0–15	00–15 00*
	0–15	00–15 00*
	00–ff _{hex} ASCII code	00–ff _{hex} <%>*
	0–44	00–44 00*
	ABCD/ABCD	00*
	abcd/abcd	01
	ABCD/TN*E	02
	abcd/tn*e	03

Option Bar Code	Option	Alphanumeric Entry
 Start/End Transmission	Disable	00*
	Enable	01



Exit

Code 128

Read: Format:

Data Digits (Variable)	Checksum (Optional)
------------------------	---------------------

Checksum Verification: The checksum is presented as the sum module 103 of all data digits.

Checksum Transmission: When this option is enabled, the QS2500 will transmit the checksum.

Maximum/Minimum Code Length: Same as Code 39. See page 27.

Truncate Leading/Ending: Same as UPC-A. See page 19.



Start Program

Option Bar Code	Option	Alphanumeric Entry
 Read	Disable	00
	Enable	01*
 Checksum Verification	Disable	00
	Enable	01*
 Checksum Transmission	Disable	00*
	Enable	01
 Maximum Code Length	64–Minimum 00*	64–00 00*

Option Bar Code	Option	Alphanumeric Entry
 Minimum Code Length	0–Maximum	00–64 00*
 Truncate Leading	0–15	00–15 00*
 Truncate Ending	0–15	00–15 00*



Exit

Code ID Setting: Same as UPC-A. See page 19.

Insertion Group Selection: Same as UPC-A. See page 19.

Format: The Code 128 data string can be translated to UCC/EAN-128 format if it starts with “FNC1”. The first “FNC1” will be translated to “[C1”, and the second “FNC1” to a concatenation code “<GS>(1D_{hex})”.

]C1	Data	<GS>	Data	Checksum
-----	------	------	------	----------

Append: When the function is enabled, it won't show the data immediately if scanner read the barcode includes FNC2 code. It will show all data until it read a barcode, which doesn't have FNC2 code.

]C2	Data	<GS>	Data	Checksum
-----	------	------	------	----------

Concatenation Code: This feature is only used for UCC/EAN-128. The Concatenation Code is the separator character, (default is GS (1D_{hex})), inserted between characters when label data is concatenated and treated as a single entry. For example:

- UCC/EAN-128 Structure:
<start> <FNC1> <Label data 1> <FNC1> <Label data 2> <CK>
<stop>
- Appending label data with Concatenation Code (GS, 1Dhex):
<]C1> <Label data 1> <GS> <Label data 2><Checksum>



Start Program

Option Bar Code	Option	Alphanumeric Entry
Code ID Setting	00–ff _{hex} ASCII code	00–ff _{hex} <#>*
Insertion Group Selection	0–44	00–44 00*
Format	Standard	00*
	UCC/EAN-128	01
Append	Disable	00*
	Enable	01
UCC/EAN-128ID Setting	00–ff _{hex} ASCII code	00–ff _{hex} <#>*
Concatenation Code	00–ff _{hex} ASCII code	00–ff _{hex} 1D _{hex} *



Exit

Code 93

Read: Format:

Data Digits (Variable)	Checksum1 (Optional)	Checksum1 (Optional)
------------------------	----------------------	----------------------

Checksum Verification: The checksum is presented as the sum module 47 of the numerical values of all data digits.

Checksum Transmission: When this option is enabled, the QS2500 will transmit the checksum.

Maximum/Minimum Code Length: Same as Code 39. See page 27.

Truncate Leading/Ending: Same as UPC-A. See page 19.

Code ID Setting: Same as UPC-A. See page 19.

Insertion Group Selection: Same as UPC-A. See page 19.



Start Program

Option Bar Code	Option	Alphanumeric Entry
	Disable	00
	Enable	01*
	Disable	00
	Enable (two digits)	01*
	Disable	00*
	Enable	01
	64–Minimum	64–00 00*
	0–Maximum	00–64 00*
	0–15	00–15 00*
	0–15	00–15 00*
	00–ff _{hex} ASCII code	00–ff _{hex} <&>*
	0–44	00–44 00*



Exit

Code 11

Read: Format:

Data Digits (Variable)	Checksum1 (Optional)	Checksum1 (Optional)
---------------------------	-------------------------	-------------------------

Checksum Verification: The checksum is presented as the sum module 11 of all data digits.

Checksum Transmission: When this option is enabled, the QS2500 will transmit one-digit or two-digit checksums, depending upon the setting for checksum verification.

Maximum/Minimum Code Length: Same as Code 39. See page 27.

Truncate Leading/Ending: Same as UPC-A. See page 19.

Code ID Setting: Same as UPC-A. See page 19.

Insertion Group Selection: Same as UPC-A. See page 19.



Start Program

Option Bar Code	Option	Alphanumeric Entry
	Disable	00*
	Enable	01
	Disable	00
	One digit	01*
	Two digit	02
	Disable	00*
	Enable	01
	64–Minimum	64–00 00*

Option Bar Code	Option	Alphanumeric Entry
 Minimum Code Length	0–Maximum	00–64 00*
 Truncate Leading	0–15	00–15 00*
 Truncate Ending	0–15	00–15 00*
 Code ID Setting	00–ff _{hex} ASCII code	00–ff _{hex} <O>*
 Insertion Group Selection	0–44	00–44 00*



Exit

MSI/Plessey

Read: Format:

Data Digits (Variable)	Checksum1 (Optional)	Checksum2 (Optional)
------------------------	----------------------	----------------------

Checksum Verification: The MSI/Plessey code has one or two optional checksum digits. The checksums are calculated as the sum module 10 or 11 of the data digits.

Checksum Transmission: When this option is enabled, the QS2500 will transmit one-digit or two-digit checksums, depending upon the setting for checksum verification.

Maximum/Minimum Code Length: Same as Code 39. See page 27.

Truncate Leading/Ending: Same as UPC-A. See page 19.

Code ID Setting: Same as UPC-A. See page 19.

Insertion Group Selection: Same as UPC-A. See page 19.



Start Program

Option Bar Code	Option	Alphanumeric Entry
	Disable	00*
	Enable	01
	Disable	00*
	Mod 10	01
	Mod 10/10	02
	Mod 11/10	03
	Disable	00*
	Enable	01
	64–Minimum	64–00 00*
	0–Maximum	00–64 00*
	0–15	00–15 00*
	0–15	00–15 00*
	00–ff _{hex} ASCII code	00–ff _{hex} <@>*
	0–44	00–44 00*



Exit

UK/Plessey

Read: Format:

Data Digits (Variable)	Checksum1+2 (Optional)
------------------------	------------------------

Checksum Verification: The UK/Plessey code has one or two optional checksum digits. The checksums are calculated as the sum module 10 or 11 of the data digits.

Checksum Transmission: When this option is enabled, the QS2500 will transmit the checksum.

Maximum/Minimum Code Length: Same as Code 39. See page 27.

Truncate Leading/Ending: Same as UPC-A. See page 19.

Code ID Setting: Same as UPC-A. See page 19.

Insertion Group Selection: Same as UPC-A. See page 19.



Start Program

Option Bar Code	Option	Alphanumeric Entry
	Disable	00*
	Enable	01
	Disable	00
	Enable	01*
	Disable	00*
	Enable	01
	64–Minimum	64–00 00*
	0–Maximum	00–64 00*

Option Bar Code	Option	Alphanumeric Entry
 Truncate Leading	0–15	00–15 00*
 Truncate Ending	0–15	00–15 00*
 Code ID Setting	00–ff _{hex} ASCII code	00–ff _{hex} <@>*
 Insertion Group Selection	0–44	00–44 00*



Exit

Telepen

Read: IATA (International Air Transport Association).

Checksum Verification: The checksum is presented as the sum module 10 or 11 of the data digits.

Checksum Transmission: When this option is enabled, the QS2500 will transmit the checksum.

Maximum/Minimum Code Length: Same as Code 39. See page 27.

Truncate Leading/Ending: Same as UPC-A. See page 19.

Code ID Setting: Same as UPC-A. See page 19.

Insertion Group Selection: Same as UPC-A. See page 19.



Start Program

Option Bar Code	Option	Alphanumeric Entry
	Disable	00*
	Enable	01
	Disable	00*
	Enable	01
	Disable	00*
	Enable	01
	64–Minimum	64–00 00*
	0–Maximum	00–64 00*
	0–15	00–15 00*
	0–15	00–15 00*
	00–ff _{hex} ASCII code	00–ff _{hex} <S>*
	0–44	00–44 00*
	Numeric only	00*
	Full ASCII only	01



Exit

Standard 2 of 5

Read: Format

Data Digits (Variable)	Checksum1 (Optional)
---------------------------	-------------------------

Maximum/Minimum Code Length: Same as Code 39. See page 27.

Truncate Leading/Ending: Same as UPC-A. See page 19.

Code ID Setting: Same as UPC-A. See page 19.

Insertion Group Selection: Same as UPC-A. See page 19.



Start Program

Option Bar Code	Option	Alphanumeric Entry
	Disable	00
	Enable	01*
	64–Minimum	64–00 00*
	0–Maximum	00–64 00*
	0–15	00–15 00*
	0–15	00–15 00*
	00–ff _{hex} ASCII code	00–ff _{hex} <i>
	0–44	00–44 00*



Exit

Code 16K

Truncate Leading/Ending: Same as UPC-A. See page 19.

Code ID Setting: Same as UPC-A. See page 19.

Insertion Group Selection: Same as UPC-A. See page 19.



Start Program

Option Bar Code	Option	Alphanumeric Entry
	Disable	00*
	Enable	01
	0-15	00-15 00*
	0-15	00-15 00*
	00-ff _{hex} ASCII code	00-ff _{hex} <>
	0-44	00-44 00*



Exit

PDF417

Truncate leading/ending: Same as UPC-A. See page 19.

Code ID Setting: Same as UPC-A. See page 19.

Insertion Group Selection: Same as UPC-A. See page 19.



Start Program

Option Bar Code	Option	Alphanumeric Entry
	Disable	00
	Enable	01*
	0-15	00-15 00*
	0-15	00-15 00*
	00-ff _{hex} ASCII code	00-ff _{hex} <>
	0-44	00-44 00*



Exit

Italian PharmaCode



Start Program

Option Bar Code	Option	Alphanumeric Entry
 Read	Disable	00*
	Enable	01
 Maximum Code Length	64–Minimum	64–00 10*
 Minimum Code Length	0–Maximum	00–64 09*
 Truncate Leading	0–15	00–15 00*
 Truncate Ending	0–15	00–15 00*
 Code ID Setting	00–ff _{hex} ASCII code	00–ff _{hex} <A>
 Insertion Group Selection	0–44	00–44 00*
 Leading “A”	Disable	00*
	Enable	01



Exit

RSS Expanded



Start Program

Option Bar Code	Option	Alphanumeric Entry
Read	Disable	00
	Enable	01*
Maximum Code Length	64–Minimum	64–00 64*
Minimum Code Length	0–Maximum	00–64 01*
Truncate Leading	0–15	00–15 00*
Truncate Ending	0–15	00–15 00*
Code ID Setting	00–ff _{hex} ASCII code	00–ff _{hex} <RX>
Insertion Group Selection	0–44	00–44 00*
UCC/EAN 128 Emulation	Disable	00*
	Enable	01



Exit



Start Program

Option Bar Code	Option	Alphanumeric Entry
Read	Disable	00
	Enable	01*
Maximum Code Length	64–Minimum	64–00 64*
Minimum Code Length	0–Maximum	00–64 01*
Truncate Leading	0–15	00–15 00*
Truncate Ending	0–15	00–15 00*
Code ID Setting	00–ff _{hex} ASCII code	00–ff _{hex} <RL>
Insertion Group Selection	0–44	00–44 00*
UCC/EAN 128 Emulation	Disable	00*
	Enable	01



Exit

RSS-14



Start Program

Option Bar Code	Option	Alphanumeric Entry
	Disable	00
	Enable	01*
	64–Minimum	64–00 64*
	0–Maximum	00–64 01*
	0–15	00–15 00*
	0–15	00–15 00*
	00–ff _{hex} ASCII code	00–ff _{hex} <R4>
	0–44	00–44 00*
	Disable	00*
	Enable	01



Exit

Appendix - Default Settings

Code Type	Read Enable	Checksum Verification Enable	Checksum Transmission Enable	Code ID
UPC-A	✓	✓	✓	A
UPC-E	✓	✓	✓	E
EAN-13	✓	✓	✓	F
EAN-8	✓	✓	✓	FF
Code 39	✓			*
Interleaved 2 of 5	✓			i
Industrial 2 of 5		✓		i
Matrix 2 of 5				B
Codabar				%
Code 128	✓	✓		#
Code 93		✓		&
Code 11		✓ /One digit		O
MSI/Plessey		✓		@
UK/Plessey		✓		@
Telepen				S
Standard 2 of 5		-		i
Code 16K		-		
PDF417	✓	-		
Italian PharmaCode				A
RSS Expanded				RX
RSS Limited				RL
RSS-14				R4

Appendix B - Bar Code Samples

UPC-A



UPC-E



EAN-13



EAN-8



Code 39



Interleaved 2 of 5



Industrial 2 of 5



Matrix 2 of 5



Codabar



Code 128



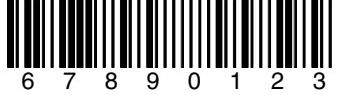
Code 93



Code 11



MSI/Plessey



UK/Plessey



Standard 2 of 5



Code 16K



PDF417



Italian PharmaCode



RSS Expanded



RSS Limited



Appendix C - ASCII Codes

L \ H	0	1	0	1
0	Null		NUL	DLE
1	Up	F1	SOH	DC1
2	Down	F2	STX	DC2
3	Left	F3	ETX	DC3
4	Right	F4	EOT	DC4
5	PgUp	F5	ENQ	NAK
6	PgDn	F6	ACK	SYN
7		F7	BEL	ETB
8	Bs	F8	BS	CAN
9	Tab	F9	HT	EM
A		F10	LF	SUB
B	Home	Esc	VT	ESC
C	End	F11	FF	FS
D	Enter	F12	CR	GS
E	Insert	Ctrl+	SO	RS
F	Delete	Alt+	SI	US

= for keyboard wedge only

L \ H	2	3	4	5	6	7
0	SP	0	@	P	`	p
1	!	1	A	Q	a	q
2	"	2	B	R	b	r
3	#	3	C	S	c	s
4	\$	4	D	T	d	t
5	%	5	E	U	e	u
6	&	6	F	V	f	v
7	'	7	G	W	g	w
8	(	8	H	X	h	x
9	)	9	I	Y	i	y
A	:	J	Z	j	z	
B	+	;	K	[	k	
C		<	L		l	
D	-	=	M	]	m	
E	.	>	N	^	n	
F	/	?	O	_	o	DEL

Example: ASCII "A" = "41"

Appendix D - Parameter Setting List



Start Program



Standard Parameter Setting List

If you wish to display the current configuration of your QS2500 over the host terminal/computer, scan the Bar Code standard parameter setting list bar code.



System Parameter Setting List

If you wish to display the product information and revision number for your QS2500 over the host terminal/computer, scan the System parameter setting list bar code.



String Setting List

If you wish to display the current configuration of your QS2500 over the host terminal/computer, scan the Bar Code standard parameter setting list bar code.



Unique Parameter List

If you wish to display the unique parameter setting list, scan the Unique parameter list bar code.



Firmware Version List

If you wish to display the firmware version, scan the Firmware version list.



Default Value Initialization

If you wish to return the QS2500 to all the factory default settings, scan the Default value initialization bar code.

Exit

Appendix E - Alphanumeric Characters

	0		A
	1		B
	2		C
	3		D
	4		E
	5		F
	6		Finish
	7		
	8		
	9		

DECLARATION OF CONFORMITY

PSC hereby declares that the Equipment specified below has been tested and found compliant to the following Directives and Standards:

Directives: EMC 89/336/EEC
Low Voltage 73/23/EEC

Standards: CISPR 22-A:1997 - Generic Emissions
EN 55022-A:1998 - Generic Emissions
EN 55024:1998 - Generic ITE Immunity
EN 60825-1:1998 - LED Safety
IEC 60950:1996 - ITE Safety
EN 61000-3-2 - Harmonic Current Emissions
EN 61000-3-3 - Voltage Fluctuation/Flicker

Equipment Type: Linear Imager Handheld Barcode Scanner

Product: QS25xx



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